# ioLogik E1200 Series
# Quick Installation Guide

**Third Edition, August 2013**

## Overview

The ioLogik E1200 series comes with 2 embedded Ethernet switch ports that can form a daisy-chain topology, which is the easiest way to add more Ethernet devices to a network or connect your ioLogiks in series. Moxa's free Active OPC Server offers active (or "push") communication that works between Moxa's ioLogik units and HMI/SCADA systems, providing instant I/O status reports by "Active Tags." The event-driven active tags result in an I/O response time that is faster than other OPC Server packages.

**Model Selection:**

| ioLogik | DI | DO | DIO | Relay | AI | AO | RTD | TC |
|---|---|---|---|---|---|---|---|---|
| E1210 | 16 | - | - | - | - | - | - | - |
| E1211 | - | 16 | - | - | - | - | - | - |
| E1212 | 8 | - | 8 | - | - | - | - | - |
| E1213* | 8 | 4 | 4 | - | - | - | - | - |
| E1214 | 6 | - | - | 6 | - | - | - | - |
| E1240 | - | - | - | - | 8 | - | - | - |
| E1241 | - | - | - | - | - | 4 | - | - |
| E1242 | 4 | - | 4 | - | 4 | - | - | - |
| E1260 | - | - | - | - | - | - | 6 | - |
| E1262 | - | - | - | - | - | - | - | 8 |

*The ioLogik E1213 has source DOs.

## Package Checklist

- 1 ioLogik E1200 series remote I/O product
- Documentation and software CD
- Quick installation guide (printed)

## Specifications

| | |
|---|---|
| **System** | |
| Ethernet: | 2 x 10/100 Mbps switch ports, RJ45 |
| Protection: | 1.5 KV magnetic isolation |
| Protocols: | Modbus/TCP, TCP/IP, UDP, DHCP, Bootp, HTTP |
| Power Input: | 24 VDC nominal, 12 to 36 VDC |
| Wiring: | I/O cable max. 14 AWG |
| Dimensions: | 27.8 x 124 x 84 mm (1.09 x 4.88 x 3.31 in) |
| Weight: | under 200 g |
| Operating Temperature: | Standard Models: -10 to 60°C (14 to 140°F) |
| Operating Temperature: | Wide Temperature Models: -40 to 75°C (-40 to 167°F) |
| Storage Temperature: | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity: | 5 to 95% (non-condensing) |

**P/N: 1802012001012**



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|---|---|
| Altitude: | Up to 2000 m |
| Note: Contact Moxa if you require products guaranteed to function properly at higher altitudes. | |
| Standards and Certifications: | UL 508, CE, FCC Class A |
| Warranty Period: | 5 years (excluding ioLogik E1214*) |
| Details: | See www.moxa.com/warranty |
| *Because of the limited lifetime of power relay, products that use this component are covered by a 2-year warranty. | |
| **Digital Input** | |
| Sensor Type: | NPN, PNP, and Dry contact |
| I/O Mode: | DI or Event Counter |
| Dry Contact: | • Logic 0: short to GND<br>• Logic 1: open |
| Wet Contact: | • Logic 0: 0 to 3 VDC<br>• Logic 1: 10 to 30 VDC (DI COM to DI) |
| Isolation: | 3K VDC or 2K Vrms |
| Counter/Frequency: | 250 Hz, power off storage |
| **Digital Output (Sink)** | |
| I/O Mode: | DO or Pulse Output |
| Pulse Wave Width/Frequency: | 1 ms/500 Hz |
| Over-voltage Protection: | 45 VDC |
| Over-current Protection: | 2.6 A (4 channels @650 mA) |
| Over-temperature Shutdown: | 175°C (typical), 150°C (min.) |
| Current Rating: | 200 mA per channel |
| Isolation: | 3K VDC or 2K Vrms |
| **Digital Output (Source)** | |
| I/O Mode: | DO or Pulse Output |
| I/O Type: | Source |
| Current: | 0.5A per channel |
| Voltage: | For DIO channel:<br>15 to 30 VDC (ext power voltage)<br>For DO channel:<br>15 to 30 VDC (ext power voltage), 12 or 9 VDC configurable by jumper. |
| Pulse Wave Width/Frequency: | 1 ms/500 Hz |
| Over-voltage Protection: | 41 VDC |
| Over-current Limit: | 6 A |
| Over-temperature Shutdown: | 175°C (typical), 150°C (min.) |
| Output Current Rating: | 1.5 A per channel |
| **Relay Output** | |
| Type: | Form A (N.O.) relay outputs, 5A |
| Contact Rating: | 5 A @ 30 VDC, 5 A @ 250 VAC, 5 A @ 110 VAC |
| Inductance Load: | 2 A |
| Resistance Load: | 5 A |
| Breakdown Voltage: | 500 VAC |
| Relay On/Off Time: | 1500 ms (max.) |
| Initial Insulation Resistance: | 1G min. @ 500 VDC |



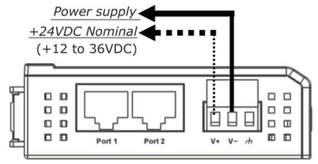
| | |
|---|---|
| Expected Life: | 100,000 times (typical) |
| Initial Contact Resistance: | 30 milli-ohms (max.) |
| Pulse Output: | 0.3 Hz at rated load |
| **Analog Input** | |
| Type: | Differential input |
| Resolution: | 16 bits |
| I/O Mode: | Voltage / Current |
| Input Range: | 0 to 10 VDC, 4 to 20 mA |
| Accuracy: | ±0.1% FSR @ 25°C<br>±0.3% FSR @ -10 and 60°C<br>±0.5% FSR @ -40 and 75°C |
| Sampling Rate (all channels): | 12 samples/sec |
| Input Impedance: | 10M ohms (min.) |
| Built-in Resistor for Current Input: | 120 ohms |
| **Analog Output** | |
| Resolution: | 12 bits |
| Output Range: | 0 to 10 VDC, 4 to 20 mA |
| Voltage Output: | 10 mA (max.) |
| Accuracy: | ±0.1% FSR @ 25°C<br>±0.3% FSR @ -40 and 75°C |
| Load Resistor: | Internal register: 400 ohms |
| Note: 24 V of external power is required when loading > 1000 ohms. | |
| **RTD** | |
| Input Type: | PT50, PT100, PT200, PT500, PT1000 |
| Resistance: | 1–310, 1–620, 1–1250, 1–2200 ohms |
| Sampling Rate: | 12 samples/sec (all channels) |
| Resolution: | 16 bits |
| Accuracy: | ±0.1% FSR @ 25°C<br>±0.3% FSR @ -40 and 75°C |
| Input Impedance: | 625k ohms |
| **Thermocouple Input** | |
| Sensor Type: | J, K, T, E, R, S, B, N |
| Millivolt Type: | ±78.126 mV, ±39.062 mV, ±19.532 mV |
| Fault and Overvoltage protection: | ±35 VDC (power off); +30 VDC, -25 VDC (power on) |
| Sampling Rate: | 12 samples/sec (all channels) |
| Resolution: | 16 bits |
| Accuracy: | ±0.1% FSR @ 25°C<br>±0.3% FSR @ -40 and 75°C |
| Input Impedance: | 10M ohms |

## Installation

### Connecting the Power

Connect the +12 to +36 VDC power line to the ioLogik E1200's terminal block V+ terminal; connect the ground from the power supply to the V- terminal. Connect the ground pin ( ⏚ ) if earth ground is available.

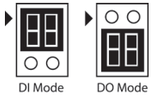




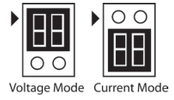

**NOTE** For safety reasons, wires connecting the power supply should be at least 2 mm in diameter (e.g., 12 gauge wires).

### Jumper Settings

Models with DIO, AI, or external power channels require configuring the jumpers inside the enclosure. Remove the screw located on the back panel and open the cover to configure the jumpers.

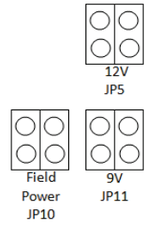



DIO mode configurations are shown above
(Default: DO Mode).




Analog mode configurations are shown above
(Default: Voltage Mode).

DOs on the ioLogik E1213 have 3 possible external (EXT) power configurations, which are shown to the right. Only one field power can be selected at a time (JP10 / 12V JP5 / 9V JP11) and the jumper must be inserted vertically, not horizontally (Default: Field Power JP10).




**NOTE** The ioLogik E1213 has 4 pure DO channels and 4 hybrid DIO channels. For the 4 pure DO channels, you can use the jumpers to select the power configuration output (i.e., field power, 12 V, 9 V). But for the 4 hybrid DIO channels, you cannot use the jumpers to select the power configuration output. Instead, you can only use the jumpers to set the DIO channels to either DI mode or DO mode.

### Mounting

There are two sliders on the back of the unit for DIN rail and wall mounting.

1. **Mounting on a DIN rail:** Pull out the bottom slider, latch the unit onto the DIN-rail, and push the slider back in.
2. **Mounting on the wall:** Pull out both the top and bottom sliders and align the screws accordingly.

### Connecting to the Network

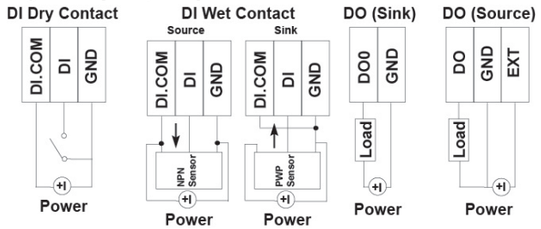
The ioLogik E1200 has two built-in RJ45 Ethernet ports for connecting standard direct or cross-over Ethernet cables.

### LED Indicators

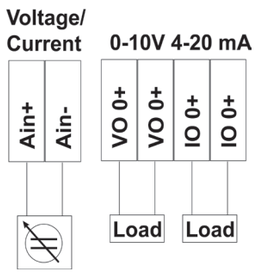
| Type | Color | Description |
|---|---|---|
| Power | Amber | System power is ON |
| | Off | System power is OFF |
| Ready | Green | System is ready |
| | Flashing | Flashes every 1 sec when the "Locate" function is triggered |
| | Flashing | Flashes every 0.5 sec when the firmware is being upgraded |
| | Flashing | An on/off period cycle: 0.5 second shows "Safe Mode" |
| | Off | System is not ready. |
| Port 1 | Green | Ethernet connection enabled |
| | Flashing | Transmitting or receiving data |
| Port 2 | Green | Ethernet connection enabled |
| | Flashing | Transmitting or receiving data |
| EXT (E1213 only) | Green | EXT field power input is connected |
| | Off | EXT field power input is disconnected |

## I/O Wiring

### Digital Inputs/Outputs

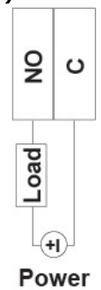



### Analog Inputs/Outputs

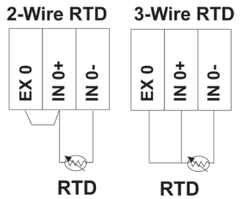




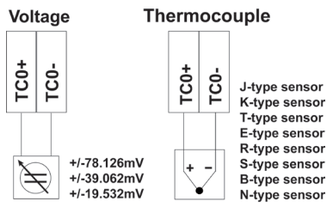

### Relay Output (Form A)




### RTD Inputs




### TC Inputs




## System Configuration

### Configuration via Web Console

Main configuration of an ioLogik E1200 is by web console.

- Default IP Address: 192.168.127.254
- Subnet Mask: 255.255.255.0

**NOTE** Be sure to configure the host PC's IP address to the same subnet as the ioLogik E1200. For example, 192.168.127.253

### ioSearch Utility

ioSearch is a search utility that helps users locate an ioLogik E1200 on the local network. The utility can be found in the **Document and Software CD → Software → ioSearch**; the latest version can be downloaded from Moxa's website.



### Load Factory Default Settings

There are three ways to restore the ioLogik E1200 to factory default settings.

1. Hold the RESET button for 5 seconds.
2. In the ioSearch utility, right-click on the ioLogik device to be reset and select **Reset to Default**.
3. Select **Load Factory Default** from the web console.

### Modbus Address Table

Consult the user's manual for the ioLogik's Modbus address, or find the default address of the I/O channels in the web console by clicking **User-defined Modbus Addressing → Default Address**.

### Active OPC Server Connection

Connect the ioLogik E1200 to an Active OPC Server by following the steps below:

1. Disable the user-defined Modbus address function.
2. Install the Active OPC Server Lite utility from the **Document and Software CD → Software → AOPC Lite → ActiveOPCSetup → Install.exe.**
3. Install from **Web console → Active OPC Server Settings → AOPC & I/O Settings**; specify the IP address where the Active OPC Server is installed. Specify the I/O channels that need to be added to Active OPC Server Lite. **Submit** the settings and then **Save/Restart**.
4. From **Web Console → Active OPC Server Settings → Create AOPC Tag**, click the **Create Tag** button.
5. Launch Active OPC Server Lite from the Windows Start menu: **Start → Programs → MOXA → IOServer → ActiveOPC → ActiveOPC**. Save configurations before exiting Active OPC Server Lite.



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